

(12) UK Patent Application (19) GB (11) 2 377 207 (13) A

(43) Date of A Publication 08.01.2003

(21) Application No 0116283.3

(22) Date of Filing 04.07.2001

(71) Applicant(s)
Far Great Plastics Industrial Co Ltd
(Incorporated in Taiwan)
No 855 Chung Shan Road, Kue-Jin Hsiang,
Tainan Hsien, Taiwan

(72) Inventor(s)
Ting-Hsing Chen

(74) Agent and/or Address for Service
Eric Potter Clarkson
Park View House, 58 The Ropewalk,
NOTTINGHAM, NG1 5DD, United Kingdom

(51) INT CL⁷
B62K 15/00

(52) UK CL (Edition V)
B7E ECF ECS E405 E408 E410

(56) Documents Cited
GB 2334698 A GB 2292547 A
WO 1988/005394 A

(58) Field of Search
UK CL (Edition S) B7E ECF ECS
INT CL⁷ B62K 15/00 25/00 25/04 25/10 25/12 25/14 25/20
25/28
Other: Online: EPODOC, JAPIO, WPI.

(54) Abstract Title
Folding structure for a bicycle

(57) A seat strut 5 has a pair of lugs 52 at its rear end that is connected to a shock absorber 7. The other end of the shock absorber is connected to a rear fork 6 via recesses 61 and a releasable fastener 81. The rear fork can pivot at a U-shaped lug portion 41 so that a cross bar 4 and the rear fork fold in on themselves. The releasable fastener may be a quick-release clamp or a lock nut and bolt.

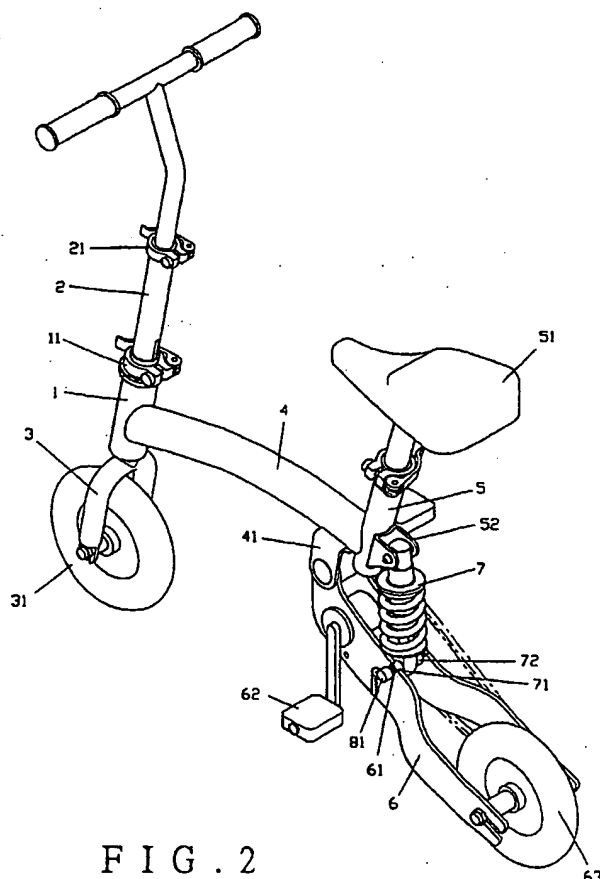


FIG. 2

GB 2 377 207 A



FIG. 1

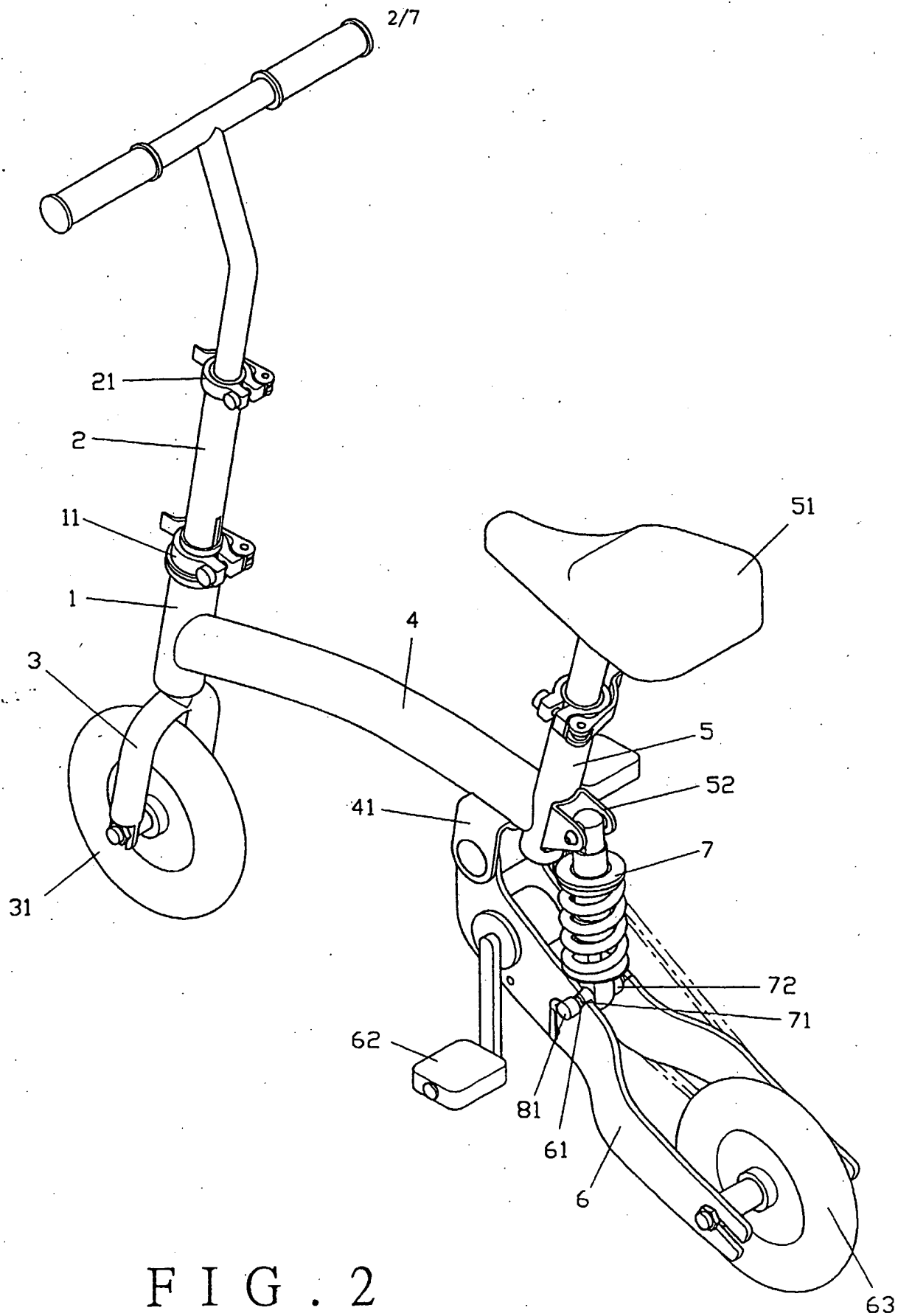


FIG. 2

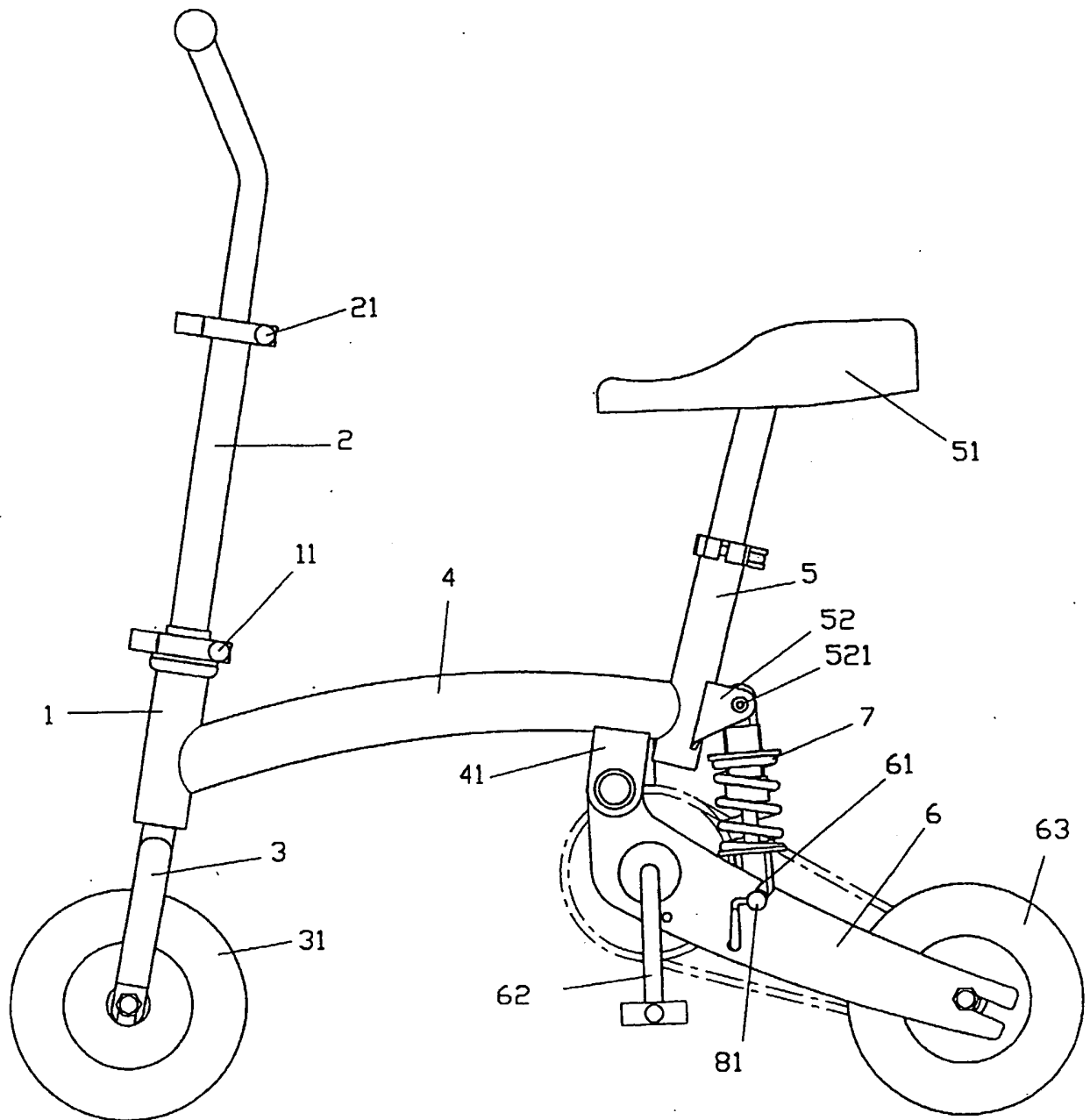


FIG. 3

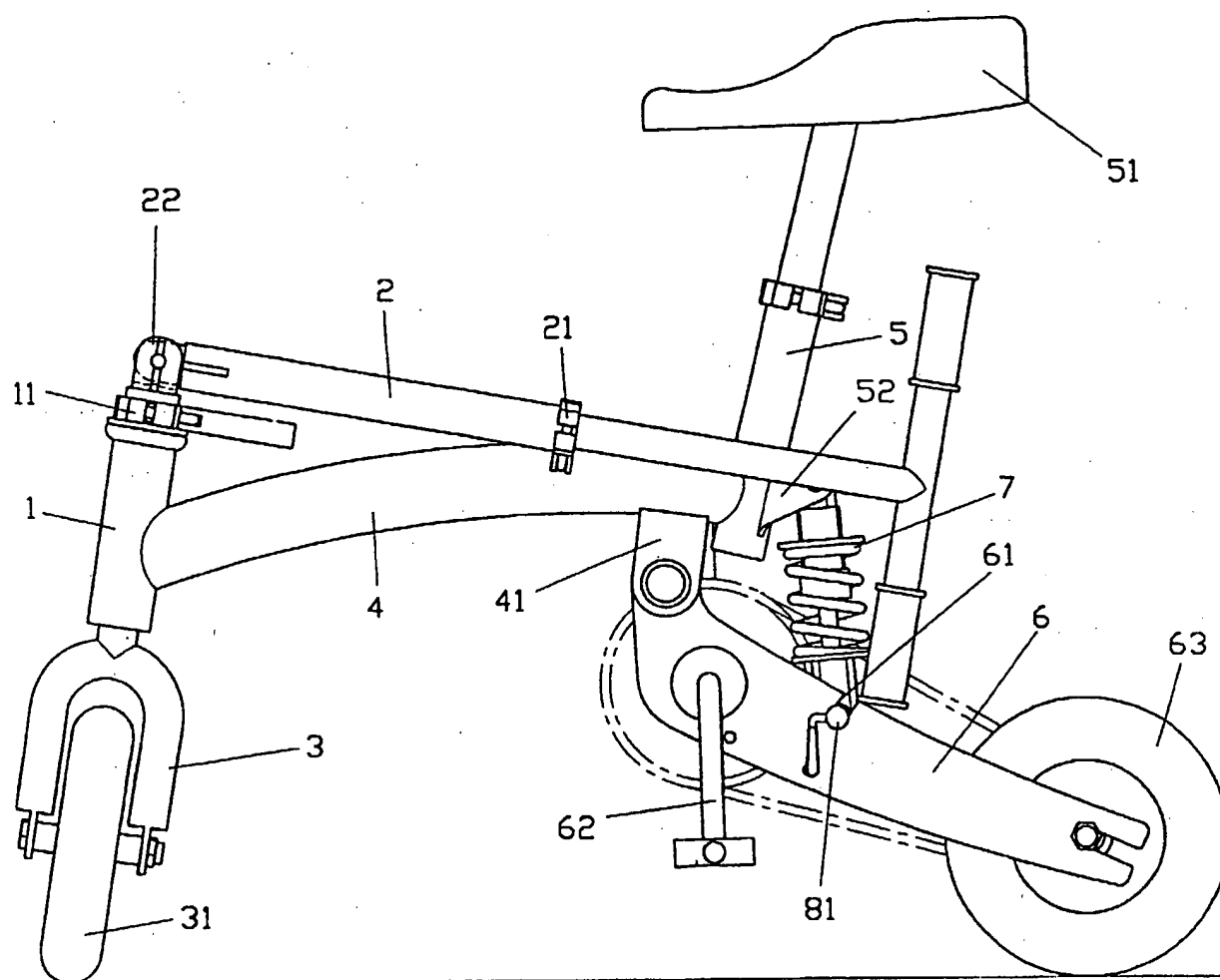


FIG. 4

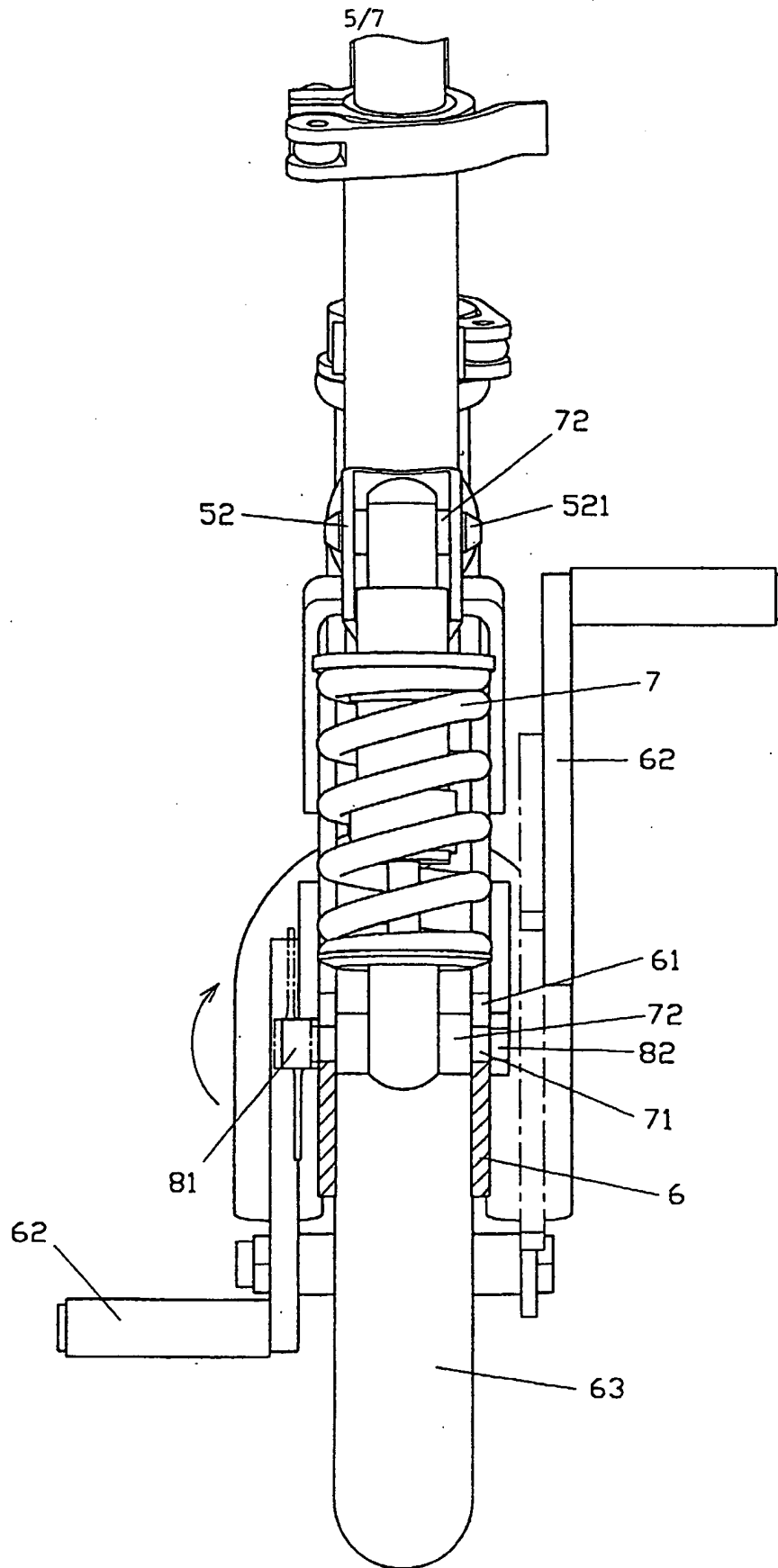


FIG. 5

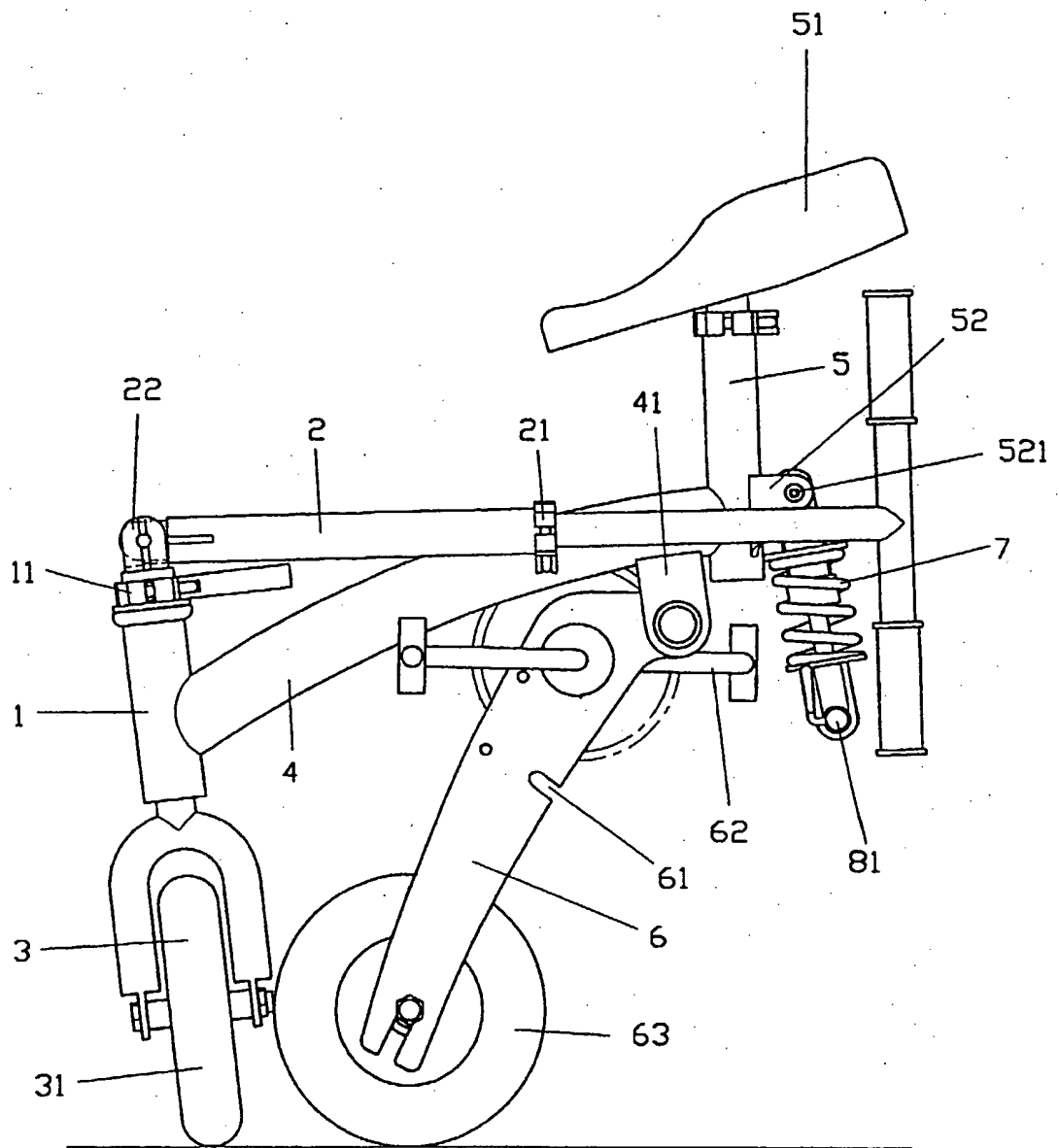


FIG. 6

7/7

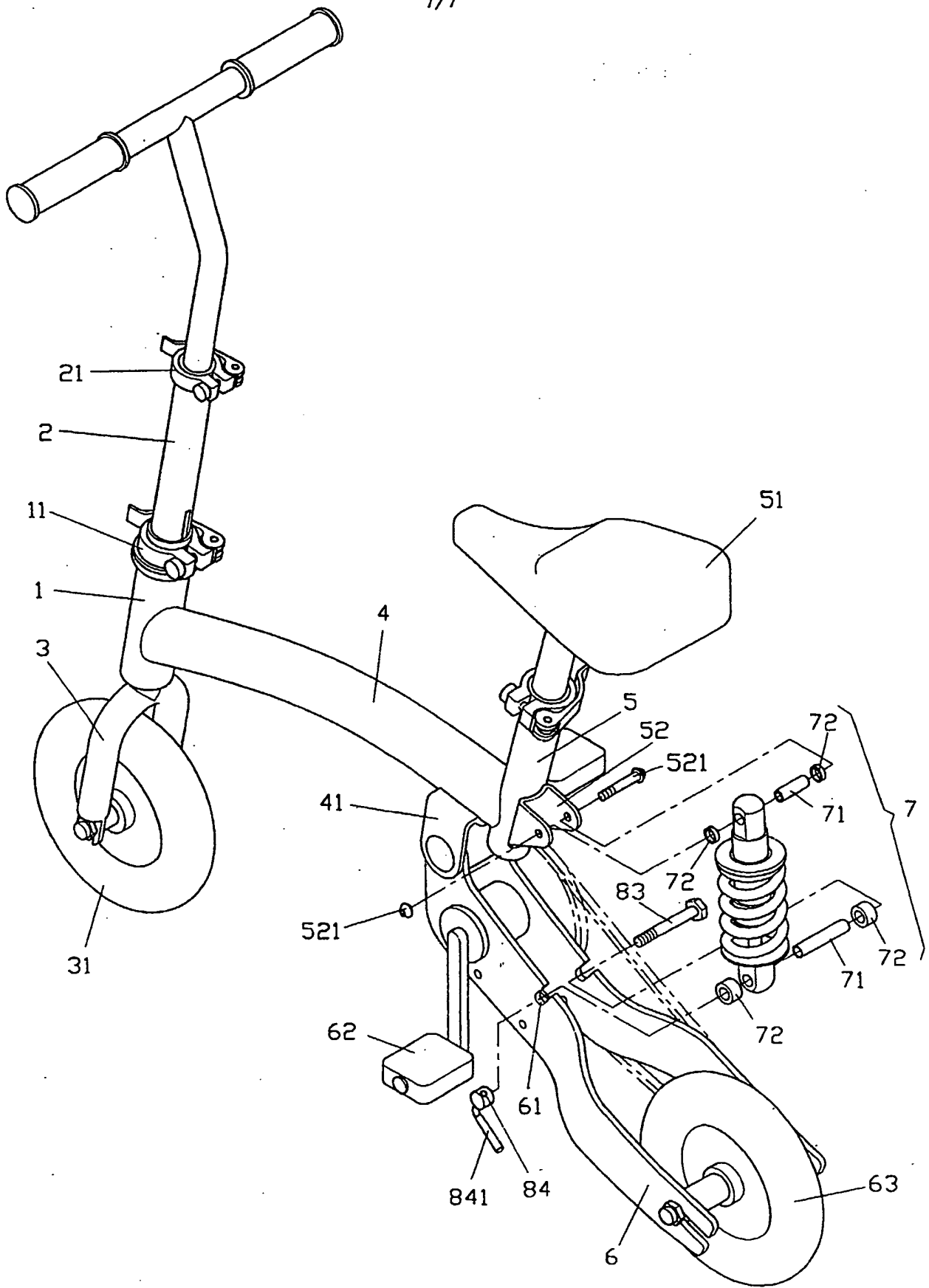


FIG. 7

TITLE: FOLDING STRUCTURE OF A BICYCLE

Field of the Invention

This invention relates to a bicycle, and more particularly to a folding structure of the bicycle.

5 Background of the Invention

A conventional bicycle is popular in the market due to its mobility and compacting, the new design also trends to provide with a leisure and fun mini bike, which is portable.

10 However, there are some shortcomings due to the fixed structure, which takes large space to store, especially when traveling with vehicle.

In view of this, the inventor has invented the present invention to improve the above mentioned and many other shortcomings.

Summary of the Invention

15 It is the primary object of the present invention to provide a bicycle with folding structure, which is easy to operate the folding structure.

It is another object of the present invention to provide a bicycle with folding structure, which is compact in size and easy to carry or store, when folded.

20 It is a further object of the present invention to provide a bicycle with folding structure, which is inexpensive in manufacture.

Brief Description of the Drawings

FIG. 1 is an exploded view of the present invention;

FIG. 2 is a perspective view of the present invention;

FIG. 3 is a side view of the present invention;

FIG. 4 is a side view depicting a folding handle of the present invention;
FIG. 5 is a front view showing release of an adjusting fastener device;
FIG. 6 is a showing depicting disconnect and folding of the rear fork; and
FIG. 7 is an exploded view of another embodiment of the present invention.

Detailed Description of the Preferred Embodiment

A bicycle with a folding structure of the present invention, as shown in FIGS. 1, 2 and 3, is to design the handle pipe 2 into several sections, which is retractable and foldable, and a rear fork 6 is able to loose and turn to one side of the front wheel.

A front strut 1 is connected with the handle pipe 2 at its top end by means of a connector 11. The handle pipe 2 comprises two sections secured by a connector 21. The lower end of the lower section of the handle pipe 2 has a bending connecting device 22 which is hidden in the front strut 1. The front strut 1 has its bottom end connected to a front fork 3 and a front wheel 31, and rearward extends a cross bar 4 from the lower end portion of the front strut 1 to connect to a seat strut 5. The rear bottom portion of the cross bar 4 has a U-shaped lug 41 to connect a rear fork 6.

The rear fork 6 has a pair of recess 61 at its top, and secures a pair of pedals 62 at the front and a rear wheel 63 at the rear end. The seat strut 5 has a seat cushion 51 connected to its top end, and a pair of lugs 52 facing at the rear end to be connected with a shock absorber 7 thereat.

The shock absorber 7 comprises two sleeves 71 inserted through a pair of holes on top and bottom end thereof and each sleeve 71 is sealed with rings 72 at respective ends thereof. The top end of the shock absorber 7 is secured to the lugs 52 by a fastener 521, and the lower end of the shock absorber 7 is secured to the rear fork 6 by an adjusting fastener device 8. The adjusting fastener device 8 comprises a quick-release wrench 81 which is inserted through the sleeve 71 of the shock absorber 7 and locating nut 82.

To operate the present invention, as shown in FIGS 3 and 5, place the lower end of the shock absorber 7 into the recesses 61 of the rear fork 6 and secured by the adjusting fastener device 8 thereat, and the top end secured to the lugs by the fastener 521, this design keeps the shock absorber 7 in a

straight position. When riding on a bumping road, the shock absorber 7 will absorb the shocking force to provide a stable and comfortable riding experience.

To disassemble the present invention, as shown in FIG. 4, the connector
5 21 of the handle pipe 2 is released, which allows the upper section to be retracted inside the handle pipe 2, then the connector 11 is released and the handle pipe 2 is lifted up till the bending connecting device 22 exposing outwardly, which is able to bend towards one side of the bicycle. The quick-release connector 81 and the nut 82 are loosened, and then the rear fork
10 6 is turned towards the cross bar 4, wherein the bicycle is compact at this moment and is easy to store.

The adjusting fastener device 8 may be a locating bolt 83 and a lock nut 84, as shown in FIG. 7. The lock nut 84 has a movable arm 841 at one end of its edge, which can tighten the locating bolt 83.

I CLAIM:

1. A folding structure of a bicycle comprising a front strut connecting to a handle pipe and a front fork for a front wheel, and being connected to a seat strut through a cross bar, said cross bar having a U-shaped
5 lug at its rear bottom end to secure a rear fork thereat, and the improvements comprising:

said seat strut being formed with a pair of lugs facing rearward to connect a top end of a shock absorber thereat, whereas the lower end of said shock absorber comprising an adjusting
10 fastener device and being secured to a recess formed on the top edge of said rear fork, this design keeping said shock absorber standing in a straight position between said seat strut and said rear fork, whereas said adjusting fastener device being able to release said shock absorber from said rear fork,
15 and said rear fork being able to turn towards the center of said bicycle freely.

2. A folding structure of a bicycle as recited in claim 1, wherein said adjusting fastener device comprises a quick-release wrench and a locating nut.

3. A folding structure of a bicycle as recited in claim 1, wherein said
20 adjusting fastener device comprises a lock nut and a locating bolt.

4. A folding structure of a bicycle as recited in claim 3, wherein said lock nut extends a movable arm.



INVESTOR IN PEOPLE

Application No: GB 0116283.3
Claims searched: 1-4

Examiner: Ian Blackmore
Date of search: 20 September 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.S): B7E (ECF, ECS)

Int Cl (Ed.7): B62K 15/00, 25/00, 25/04, 25/10, 25/12, 25/14, 25/20, 25/28.

Other: Online: EPODOC, JAPIO, WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2334698 A (MOULTON) see figure 2	1
X	GB 2292547 A (KULHAWIK) see figure 1	1
X	WO 88/05394 A (BOGEN) see figure 6 in particular	1

X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
& Member of the same patent family

A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before the filing date of this invention.
E Patent document published on or after, but with priority date earlier than, the filing date of this application.

BEST AVAILABLE COPY